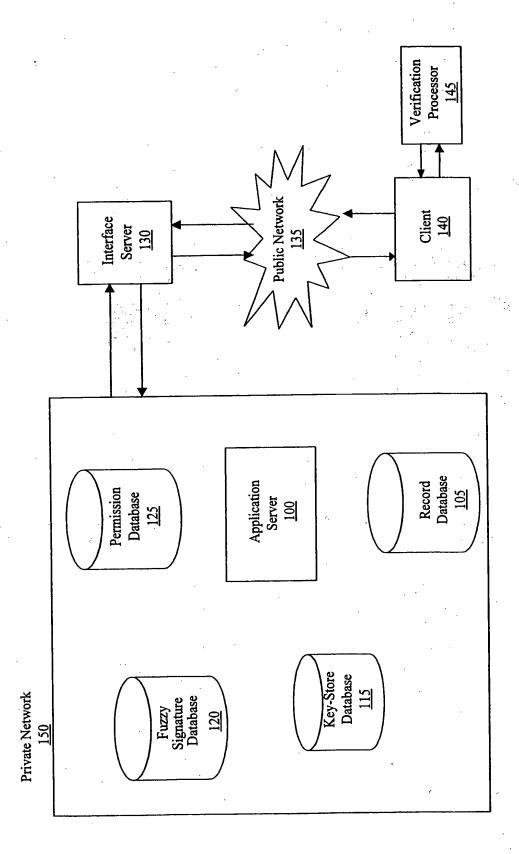
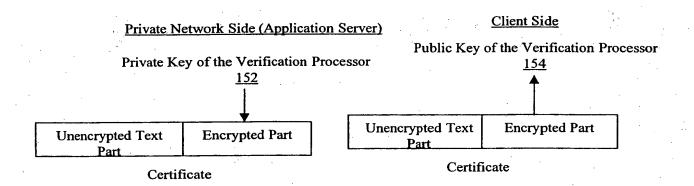
Fig. la





## Fig. 1b

#### Keys Used for Authenticating the Interface Server



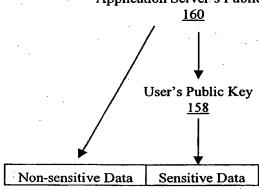


### Fig. 1c

# Keys Used in Transmitting, Receiving, and Storing Data

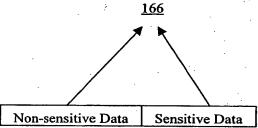
## Client Transmitting Data to a Private Network (Application Server)

Application Server's Public Key

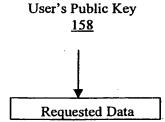


## Private Network (Application Server) Receiving and Storing Data

Application Server's Private Key

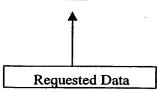


Private Network (Application Server)
Transmitting Data to Client



#### **Client Receiving Data**

User's Private Key
164

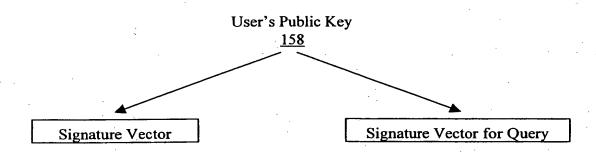


Key:  $\downarrow$  = Encryption  $\uparrow$  = Decryption



# Fig. 1d

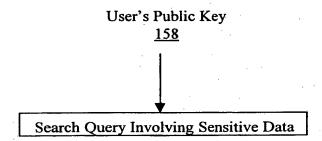
### Keys Utilized in Fuzzy Searching





# Fig. 1e

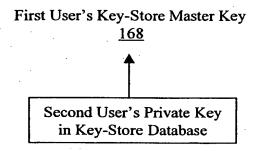
### Keys Utilized in Relational Database Searching





# Fig. 1f

#### Keys Utilized in Accessing Sensitive Data



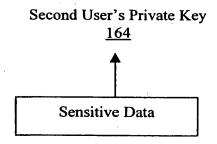




Fig. 1h

#### Steps for Communications between a Client and a Private Network

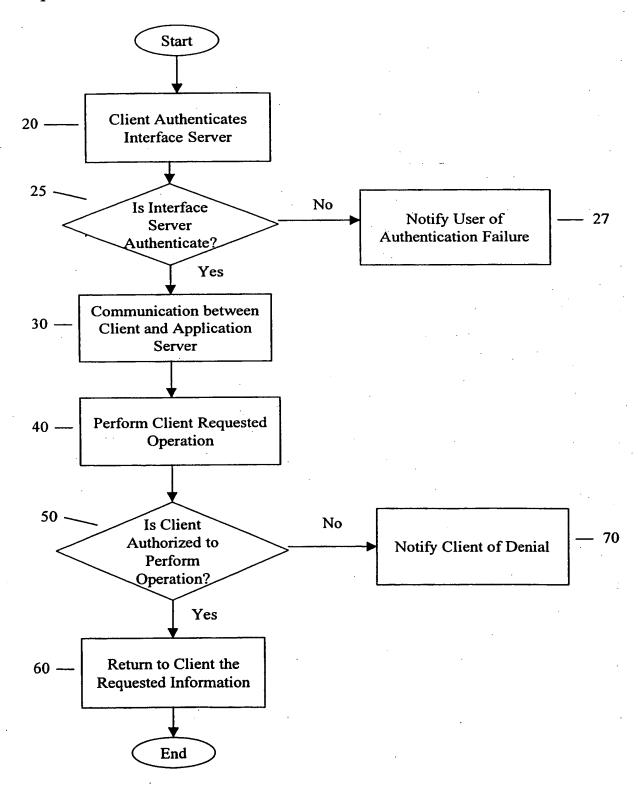
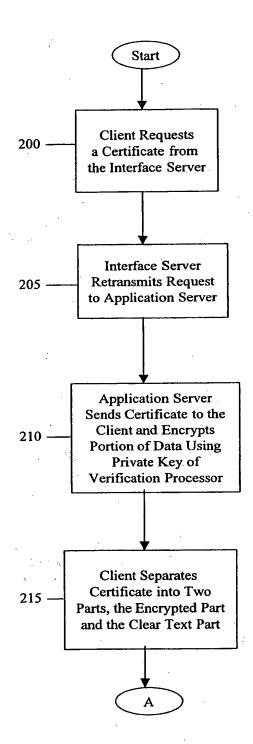




Fig. 2

#### **Authentication**



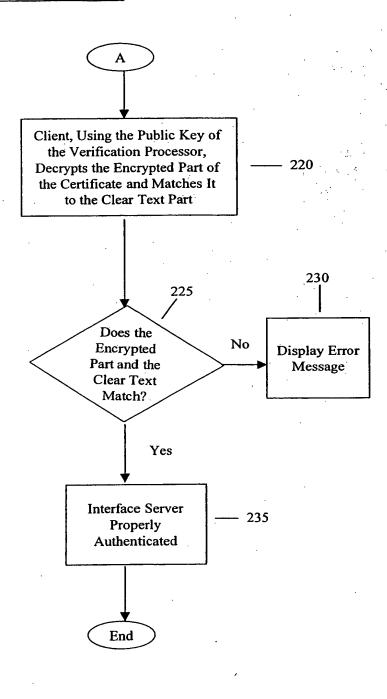




Fig. 3

#### Transmission and Storage of Data

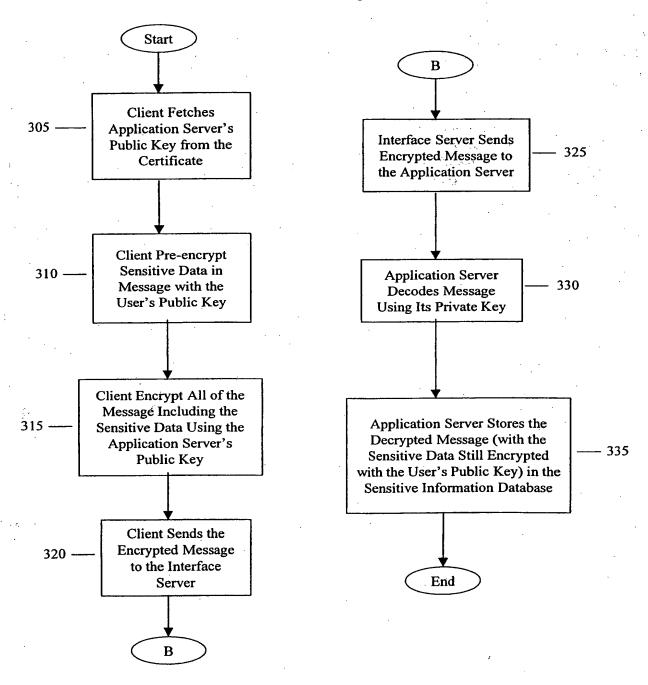




Fig. 4
Search Operation

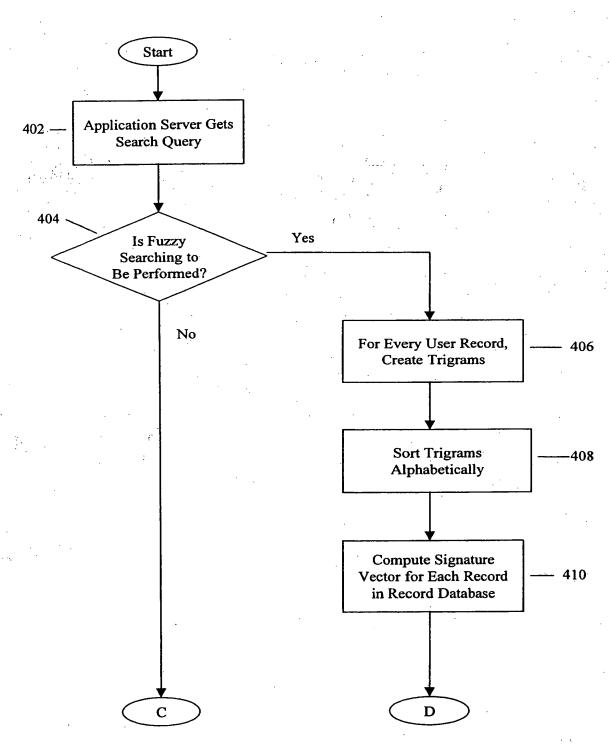




Fig. 4
Search Operation

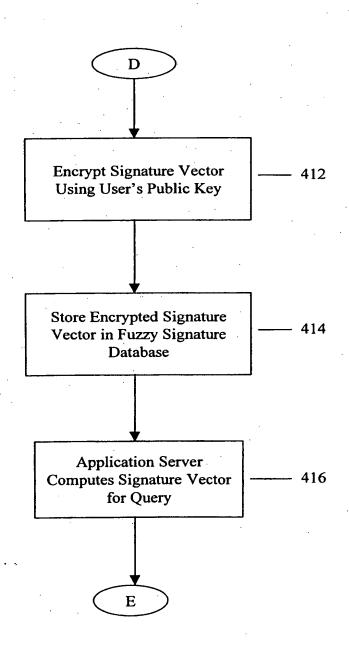




Fig. 4

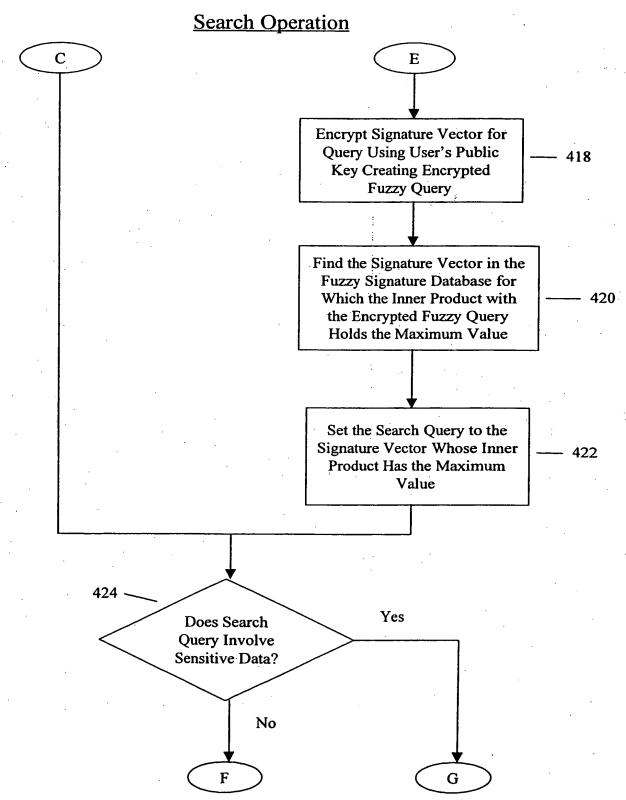




Fig. 4
Search Operation

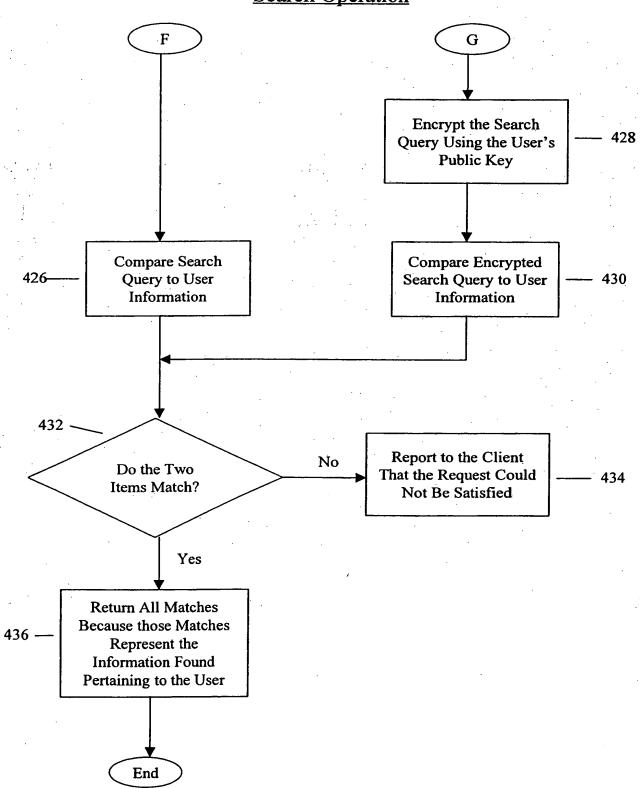




Fig. 5
Accessing Sensitive Data

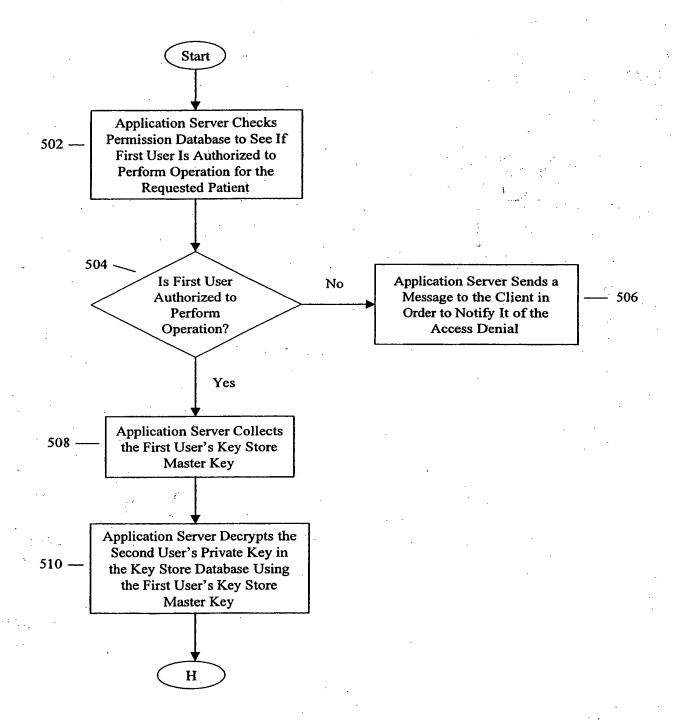




Fig. 5

Accessing Sensitive Data (Cont.)

